



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,169	01/12/2001	Ursula Murschall	00/002 MFE	2792
7590	05/21/2004		EXAMINER	
ProPat, L.L.C. 2912 Crosby Road Charlotte, NC 28211			UHLIR, NIKOLAS J	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/760,169		MURSCHALL ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Nikolas J. Uhler		1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to the request for continued examination (RCE) dated 03/03/2004. Currently, claims 1-11 are pending.

#### ***Claim Rejections - 35 USC § 103***

2. Claims 1-2, 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murschall et al. (DE19630599) in view of Zannuci et al. (US4265804) and Oishi et al. (US5936048).

3. For the purpose of this examination, the examiner has relied upon an oral translation of the Murschall et al. reference to provide basis for this rejection. A complete translation of the reference has been requested and will be provided to the applicant when it is obtained.

4. Claim 1, requires a transparent, low flammability, UV-resistant, biaxially oriented film made from a film forming thermoplastic and having a thickness of from 5-300 $\mu$ m, wherein the film comprises at least one crystallizable thermoplastic; at least one UV stabilizer; at least one flame retardant; where at least the flame retardant is provided as a compounded first masterbatch, and preferably also the UV stabilizer, where the UV stabilizer is thermally stable at temperatures exceeding 240<sup>0</sup> C, is provided in the first masterbatch or as a compounded second masterbatch during the production of the film, where said oriented film has a luminous transmittance of >80%, a surface gloss of >100, a haze of 20%, and a yellowness index of 10.

5. The limitations "where said at least one flame retardant, as dispersed component of a masterbatch" and "wherein the UV stabilizer.... is provided in the first masterbatch

Art Unit: 1773

or as a compounded second masterbatch" in claim 1, are process limitations in a product claim that do not appear to be further limiting in so far as the structure of the product is concerned. Even though product claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

6. With respect to the limitations of claim 1, Murschall et al. (hereafter Murschall) teaches an un-oriented transparent polyethylene terephthalate (PET) (a known crystallizable material) film that contains a UV stabilizer and one or more antioxidants. In specific embodiments, this PET film is formed to a thickness of 250 $\mu$  (examples 1-6, layer A), thus the thickness limitation is met. Murschall teaches that suitable UV stabilizers include 2-hydroxybenzophenone, 2-hydroxybenzotriazole, resorcinol monobenzoate, oxanilides, hydroxybenzoic esters, sterically hindered amines and triazines, salicylic esters, cinnamic ester derivatives, and organo-nickel compounds. Typically 1-5% by weight of the UV stabilizer is added based on the weight of the PET (page 3, lines 5-55). It is the examiners position that the thermal stability of a UV stabilizer is a material property. Thus, as the list of UV stabilizer utilized by Murschall identically matches the list of UV stabilizers claimed by the applicant in claim 6, the examiner take the position that the thermal stability requirement is met. It is further noted that example 2 of Murschall recites a PET film that exhibits a surface gloss of

Art Unit: 1773

154, light transmission (equivalent to luminous transmission) of 91.2%, a mist value (equivalent to applicants haze value) of 2.8, and a yellowness of 4 (page 8 example 2).

7. However, Murschall does not teach a biaxially oriented film exhibiting the claimed optical properties, and does not teach the use of a flame retardant in the composition, as required by claim 1.

8. Regarding the biaxially orientation of the film. While the examiner notes that Murschall teaches that the PET film is unoriented, there is nothing in Murschall detailing that the PET film must be unoriented. In other words, Murschall does not teach away from orienting the PET film. Bearing this in mind, Zanucci teaches that by biaxially orienting a PET film that contains similar U.V. stabilizers (i.e. benzotriazoles and benzophenones) to those disclosed in Murschall, the weatherability of the film is greatly increased (column 2, lines 35-43 and column 2, line 55-column 4, line 50).

9. Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to biaxially orient the PET film of Murschall per the teachings of Zanucci in order to attain a PET film having increased weatherability over that of the unoriented Murschall film.

10. Regarding the flame retardant, Oishi et al. teaches a method for preparing a modified polymer resin (title). These polymer resins include polyester such as polyethylene terephthalate (Column 17, lines 43-45). Oishi also teaches that in addition to a modified resin additive, an additive such as dimethyl methylphosphonate (DMMP) may be added to a resin to provide that resin with flame retardant properties (column 21

Art Unit: 1773

lines 4-11). Typically this flame retardant is added in an amount of 5-40% by weight (Column 23 lines 47-48).

11. Therefore it would have been obvious to one with ordinary skill in the art to add a 5% of a flame retardant such as DMMP as taught by Oishi to the polyethylene terephthalate film taught by Murschall as modified by Zanucci.

12. One would have been motivated to make this modification due to the increased flame resistance of the PET film one would expect to gain as a result.

13. It should be noted that DMMP is listed by the applicant in the instant specification as a suitable flame retardant.

14. Regarding the applicants requirement that the film exhibit particular levels of transmittance, haze, and yellowness. The combination of Murschall with Zanucci and Oishi results in a biaxially oriented film that: 1) is based on the same type of polymer (biaxially oriented PET); 2) contains the same type (i.e. 2-hydroxybenzotriazole) and amount (1-5%) of U.V. stabilizer; and 3) contains the same type (DMMP) and amount (5%) of flam retardant as that utilized by the instant invention. In view of all of these similarities, the examiner takes the position that the optical properties required by claim 1 will be necessarily met by the above combination.

15. The examiner acknowledges that some of the properties of the Murschall film (i.e. yellowness) may be degraded by the biaxial orientation. However, the degree to which these properties will be degraded has not been established. Specifically, it has not been shown that biaxially orienting the Murschall film will result in a film that does not meet the applicant's claimed properties.

Art Unit: 1773

16. Regarding the limitations of claim 2, wherein the applicant requires the crystallizable film to be polyethylene terephthalate, polybutylene terephthalate, or polyethylene naphthalate, preferably polyethylene terephthalate. This limitation is met as set forth above for claim 1.

17. Regarding claim 4, wherein the applicant requires the amount of flame retardant present to be in the range of 0.5-30% by weight. This limitation is met as set forth above for claim 1.

18. Regarding claim 5, wherein the applicant requires the amount of UV stabilizer to be 0.1-5% by weight based on the weight of the crystallizable thermoplastic. This limitation is met as set forth above for claim 1.

19. Regarding claim 6, wherein the applicant requires the UV stabilizer to be selected from the particular group recited. As stated above for claim 1, Murschall teaches an identical list of suitable UV stabilizers. Thus, this limitation is met.

20. Regarding claim 7-8, wherein the applicant requires the flame retardant to comprise an organic phosphorous compounds, specifically dimethyl methylphosphonate. This limitation is met as stated above for claim 1.

21. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murschall modified by Zanucci and Oishi as applied to claim 1 above, and further in view of Rakos et al. (US6251505).

22. Murschall as modified by Zanucci and Oishi does not teach coating the PET film with copolyesters or adhesion promoters, as required by claim 3.

Art Unit: 1773

23. However, Rakos et al. (hereafter Rakos) teaches an oriented polyethylene terephthalate film. Further Rakos teaches applying an adhesion promoting coating to either side of the PET film to improve the adhesion of the film to a substrate (Column 6, lines 61<sup>+</sup>).

24. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the PET film disclosed by Murschall as modified by Oishi with an adhesion promoting coating, as taught by Rakos.

25. One would have been motivated to make this modification due to the increased adhesion of the film to a substrate that one would expect to gain as a result.

26. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murschall as modified by Zanucci and Oishi as applied to claim 1 above, and further in view of Schreck et al. (US5866246) and Kishida et al. (US5008313).

27. While Murschall as modified by Zanucci and Oishi does teach the use of a hydrolysis stabilizer in the PET film, the combination does not teach utilizing a hydrolysis stabilizer comprising .1-1% by weight of an alkali metal stearate/carbonate or alkali earth-metal stearate/carbonate. In addition, these references do not teach the use of .05-.6% by weight of a phenolic stabilizer which has a molar mass greater than 500g, specifically a phenolic stabilizer such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate.

28. However, Schreck teaches that to improve the properties of thermoplastic polymers such as polyester, 0.5-2% by weight of stabilizers such as alkali metal



Art Unit: 1773

stearates/carbonates, and phenolic stabilizers such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate can be added to the polymer composition (column 11, lines 15-20 and column 12, lines 8-21). Further, Kishida et al. teaches phenolic stabilizers such as pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate are heat stabilizers that are added to thermoplastic resins in order to control discoloration and heat deterioration under high temperature conditions, (Kishida column 3, line 63-column 4, line 28).

29. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate .05-2% of a metal stearate/carbonate, alkali earth-metal stearate/carbonate, or a phenolic stabilizer as described by Schreck et al. to the multilayer film described by Murschall as modified by Zanucci and Oishi et al.

30. One would have been motivated to make this modification due to the teaching in Schreck et al. that stabilizers are added to improve various properties of a thermoplastic film, such as a film of polyester. One would have been further motivated to make this modification due to the teaching in Kishida et al. that pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate is added to thermoplastic resins as a heat/color stabilizing additive. One would have been still further motivated to make this modification due to the fact that it is well known in the art that stabilizers are compounds added to prevent the degradation of polymeric materials.

31. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murschall in view of Zanucci, Schreck, Kishida, and Ragan et al. (US4551485)

Art Unit: 1773

32. Claim 11 requires the limitations of claim 9, and additionally requires that the organic phosphorous based flame retardant comprise long chain ammonium polyphosphates or carboxyphosphinic acids or anhydrides. Further, claim 11 requires, besides the hydrolysis stabilizer required by claim 9, 0.01-5% by weight of 2,2-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,2,2-tetramethylpropyl)phenol or mixtures of these U.V. stabilizers or mixtures of at least one of these U.V. stabilizers with other U.V. Stabilizers such that the total amount of U.V stabilizer in the film is 0.01-5% by weight based on the weight of the crystallizable thermoplastic.

33. As set forth above for claim 1, Murschall et al. (hereafter Murschall) teaches an un-oriented transparent polyethylene terephthalate (PET) (a known crystallizable material) film that contains a UV stabilizer and one or more antioxidants. In specific embodiments, this PET film is formed to a thickness of 250 $\mu$  (examples 1-6, layer A), thus the thickness limitation is met. Murschall teaches that suitable UV stabilizers include 2-hydroxybenzophenone, 2-hydroxybenzotriazole, resorcinol monobenzoate, oxanilides, hydroxybenzoic esters, sterically hindered amines and triazines, salicylic esters, cinnamic ester derivatives, and organo-nickel compounds. Typically 1-5% by weight of the UV stabilizer is added based on the weight of the PET (page 3, lines 5-55). It is the examiners position that the thermal stability of a UV stabilizer is a material property. Thus, as the list of UV stabilizer utilized by Murschall identically matches the list of UV stabilizers claimed by the applicant in claim 6, the examiner take the position that the thermal stability requirement is met. It is further noted that example 2 of Murschall recites a PET film that exhibits a surface gloss of 154, light transmission

Art Unit: 1773

(equivalent to luminous transmission) of 91.2%, a mist value (equivalent to applicants haze value) of 2.8, and a yellowness of 4 (page 8 example 2).

34. However, Murschall does not teach a biaxially oriented film exhibiting the claimed optical properties, does not teach the required U.V. stabilizer, and does not teach the flame retardant required by claim 11.

35. However, Zanucci as set forth above teaches that by biaxially orienting a PET film containing a U.V. stabilizer, the weatherability of the film is increased.

36. Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made to biaxially orient the PET film of Murschall per the teachings of Zanucci in order to attain a PET film having increased weatherability over that of the unoriented Murschall film.

37. Further, as set forth above Schreck teaches that to improve the properties of thermoplastic polymers such as polyesters, 0.5-2% by weight of stabilizers such as alkali metal stearates/carbonates, and phenolic stabilizers such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate can be added to the polymer composition (column 11, lines 15-20 and column 12, lines 8-21). Further, Kishida et al. teaches phenolic stabilizers such as pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate are heat stabilizers that are added to thermoplastic resins in order to control discoloration and heat deterioration under high temperature conditions, (Kishida column 3, line 63-column 4, line 28).

Art Unit: 1773

38. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate .05-2% of a metal stearate/carbonate, alkali earth-metal stearate/carbonate, or a phenolic stabilizer as described by Schreck et al. to the multilayer film described by Murschall as modified by Zanucci.

39. One would have been motivated to make this modification due to the teaching in Schreck et al. that stabilizers are added to improve various properties of a thermoplastic film, such as a film of polyester. One would have been further motivated to make this modification due to the teaching in Kishida et al. that pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate is added to thermoplastic resins as a heat/color stabilizing additive. One would have been still further motivated to make this modification due to the fact that it is well known in the art that stabilizers are compounds added to prevent the degradation of polymeric materials.

40. Regarding the requirements directed towards the flame retardant, Ragan et al. (hereafter Ragan) teaches common additives for PET include flame retardants such as ammonium polyphosphates (column 10, lines 1-11).

41. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add ammonium polyphosphates to the PET film of Murschall in order to improve the flame resistance of the film.

42. Regarding the limitations as to the specific U.V stabilizers required by claim 11, Murschall teaches that these exact same compounds are useful as UV stabilizers in the PET film. Specifically, Murschall teaches adding 0.01-5% by weight of these compounds to the film based on the weight of the PET (page 3, lines 50-55)

Art Unit: 1773

43. Therefore it would have been obvious to one of ordinary skill in the art to utilize 0.01-5% by weight of 2,2,-methylenebis(6-(2H-benzotrizol-2-yl)-4-(1,1,2,2-tetramethylpropyl)phenol as the UV stabilizer in Murschall, as Murschall recognizes the equivalence of these compound to the other UV stabilizers listed as suitable for this purpose.

44. The applicant is respectfully reminded that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In Re Fount* 213 USPQ 532 (CCPA 1982); *In Re Siebentritt* 152 USPQ 618 (CCPA 1967); *Grover Tank & Mfg. Co. Inc V. Linde Air Products Co.* 85 USPQ 328 (USSC 1950)

45. Regarding the optical properties required by claim 11 (through its dependency on claim 1). the examiner takes the position that these limitations are met by the combination of Murschall with Zanucci, Schreck, Kishida, and Ragan et al, as the combination results in a biaxially oriented film containing the same amounts of the same components listed in the instant claims.

46. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald (GB2344596) in view of Murschall.

47. The examiner notes that Macdonald is valid prior art under 35 U.S.C 102(a), but can be overcome by applicants perfecting their priority claim.

48. With respect to claim 1, Macdonald teaches a polyester film, such as a PET or Pen film that contains a flame retardant and a U.V. Stabilizer (page 1, lines 3-4). he thickness of the film is preferably 12-50 $\mu$ m (page 3, lines 20-25) and thus meets the

Art Unit: 1773

thickness requirement of claim 1. The polyester film may be unoriented, but is preferably uniaxially or biaxially oriented (page 4, lines 9-12).

49. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention to biaxially orient the polyester film of Macdonald, as Macdonald explicitly teaches that biaxially orienting the polyester film is desirable.

50. With respect to the flame retardant, Macdonald teaches that phosphorous-based flame retardants are suitable (page 5, line 8). The amount of flame retardant added to the film is preferably 0.4-2.0% by weight (page 5, lines 10-11).

51. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize 2% by weight of a phosphorous based flame retardant in the invention of Macdonald, as Macdonald explicitly teaches that this type and amount of flame retardant is suitable.

52. Regarding the U.V. stabilizer, Macdonald teaches that benzophenone and benzotriazole type U.V. stabilizers are suitable (page 5, lines 23-25).

53. Macdonald does not teach utilizing a U.V. stabilizer that is thermally stable at  $\geq 240^{\circ}\text{C}$ , as required by claim 1.

54. However, Murschall teaches that suitable UV stabilizers for polyesters include 2-hydroxybenzophenone, 2-hydroxybenzotriazole, resorcinol monobenzoate, oxanilides, hydroxybenzoic esters, sterically hindered amines and triazines, salicylic esters, cinnamic ester derivatives, and organo-nickel compounds. Typically 1-5% by weight of the UV stabilizer is added based on the weight of the PET (page 3, lines 5-55).

55. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize 1-5% by weight of 2-hydroxybenzotriazole as taught by Murschall as the U.V. stabilizer in Macdonald.

56. One would have been motivated to make this modification in view of the fact that Macdonald teaches that benzotriazole type U.V. stabilizers are suitably used in the polyester, and the fact that Murschall teaches that 1-5% 2-hydroxybenzotriazole is typically added to polyesters as a U.V. stabilizer.

57. It is the examiners position that the thermal stability of a UV stabilizer is a material property. Thus, as the list of UV stabilizer utilized by Murschall identically matches the list of UV stabilizers claimed by the applicant in claim 6, the examiner take the position that the thermal stability requirement of claim 1 is met by the combination of Macdonald with Murschall.

58. Regarding the optical property requirements of claim 1. Macdonald teaches that the haze of the film is less than 6 (page 9, lines 8-15). Thus, the haze requirement of claim 1 is met. Regarding the remaining optical properties, it is noted that the combination of Macdonald with Murschall results in a film meeting all of the compositions and structural requirements of claims 1-2, and 4-6. In view of these similarities in structure and composition, the examiner takes the position that the remaining required optical properties are necessarily met.

59. Claims 2 and 4-6 are met as set forth above for claim 1.

60. Regarding claim 3. Macdonald teaches forming a heat sealable layer on the polyester (page 9, lines 19-20). The heat sealable layer is provided so as to be able to

Art Unit: 1773

form a heat seal bond with a metal sheet (page 9, lines 20-30). The examiner takes the position that this heat sealing layer is equivalent to applicant's claimed adhesion promoter. Further, Macdonald teaches an embodiment wherein the polyester layer comprises multiple layers, with the heat sealing layer on the innermost layer (page 11, lines 8-15). Thus, the limitations of claim 3 are met.

61. Claims 7-8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald as modified by Murschall as applied to claim 1 above, and further in view of Oishi.

62. Macdonald as modified by Murschall fails to teach the use of an organic phosphorous based flam retardant, specifically DMMP, as required by claims 7-8.

63. However, Oishi et al. teaches that DMMP is a suitable flame retardant for polyester films (Column 17, lines 43-45 and column 21, lines 4-11). Typically this flame retardant is added in an amount of 5-40% by weight (Column 23 lines 47-48).

64. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add 5 by weight of DMMP as taught by Oishi to the polyester taught by Macdonald as modified by Murschall.

65. One would have been motivated to make this modification in view of the fact that Macdonald teaches that phosphorous based flame retardants are suitable flame retardants, and that DMMP is an phosphorous based flame retardant that is suitably utilized in polyesters.



Art Unit: 1773

66. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald as modified by Murschall as applied to claim 1 above, and further in view of Schreck et al. (US5866246) and Kishida et al. (US5008313).

67. Macdonald as modified by Murschall does not teach utilizing a hydrolysis stabilizer comprising .1-1% by weight of an alkali metal stearate/carbonate or alkali earth-metal stearate/carbonate. In addition, these references do not teach the use of .05-.6% by weight of a phenolic stabilizer which has a molar mass greater than 500g, specifically a phenolic stabilizer such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate, as required by claims 9-10.

68. However, Schreck teaches that to improve the properties of thermoplastic polymers such as polyester, 0.5-2% by weight of stabilizers such as alkali metal stearates/carbonates, and phenolic stabilizers such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate can be added to the polymer composition (column 11, lines 15-20 and column 12, lines 8-21). Further, Kishida et al. teaches phenolic stabilizers such as pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate are heat stabilizers that are added to thermoplastic resins in order to control discoloration and heat deterioration under high temperature conditions, (Kishida column 3, line 63-column 4, line 28).

69. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate .05-2% of a metal stearate/carbonate, alkali

Art Unit: 1773

earth-metal stearate/carbonate, or a phenolic stabilizer as described by Schreck et al. to the multilayer film described by Macdonal as modified by Murschall.

70. One would have been motivated to make this modification due to the teaching in Schreck et al. that stabilizers are added to improve various properties of a thermoplastic film, such as a film of polyester. One would have been further motivated to make this modification due to the teaching in Kishida et al. that pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate is added to thermoplastic resins as a heat/color stabilizing additive. One would have been still further motivated to make this modification due to the fact that it is well known in the art that stabilizers are compounds added to prevent the degradation of polymeric materials.

71. Claims 1, 7, and 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Macdonald in view of Murschall, Schreck, Kishida and Ragan (US4551485).

72. Macdonald is relied on as set forth above at sections 48-69.

73. However, Macdonald does not teach a biaxially oriented film exhibiting the claimed optical properties, does not teach using the required U.V. or hydrolysis stabilizer, and does not teach the flame retardant required by claim 1, 7, 9, and 11.

74. Regarding the limitations as to the specific U.V stabilizers required by claim 11, Murschall teaches that these exact same compounds are useful as UV stabilizers in the PET film. Specifically, Murschall teaches adding 0.01-5% by weight of these compounds to the film based on the weight of the PET (page 3, lines 50-55)

Art Unit: 1773

75. Therefore it would have been obvious to one of ordinary skill in the art to utilize 0.01-5% by weight of 2,2,-methylenebis(6-(2H-benzotrizol-2-yl)-4-(1,1,2,2-tetramethylpropyl)phenol as the UV stabilizer in Macdonald, as Macdonald teaches that bentriazol type U.V. stabilizers are suitable and Murschall teaches that 2,2,-methylenebis(6-(2H-benzotrizol-2-yl)-4-(1,1,2,2-tetramethylpropyl)phenol (a benzotriazol) is a suitable U.V. stabilizer in polyesters.

76. Regarding the hydrolysis stabilizer, Schreck teaches that to improve the properties of thermoplastic polymers such as polyester, 0.5-2% by weight of stabilizers such as alkali metal stearates/carbonates, and phenolic stabilizers such as 1,3,5-trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene or pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate can be added to the polymer composition (column 11, lines 15-20 and column 12, lines 8-21). Further, Kishida et al. teaches phenolic stabilizers such as pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate are heat stabilizers that are added to thermoplastic resins in order to control discoloration and heat deterioration under high temperature conditions, (Kishida column 3, line 63-column 4, line 28).

77. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate .05-2% of a metal stearate/carbonate, alkali earth-metal stearate/carbonate, or a phenolic stabilizer as described by Schreck et al. to the multilayer film described by Macdonald as modified by Murschall.

78. One would have been motivated to make this modification due to the teaching in Schreck et al. that stabilizers are added to improve various properties of a thermoplastic

Art Unit: 1773

film, such as a film of polyester. One would have been further motivated to make this modification due to the teaching in Kishida et al. that pentaerythrityl tetrakis-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate is added to thermoplastic resins as a heat/color stabilizing additive. One would have been still further motivated to make this modification due to the fact that it is well known in the art that stabilizers are compounds added to prevent the degradation of polymeric materials.

79. Regarding the flame retardant required by claim 11, Ragan teaches common additives for PET include flame retardants such as ammonium polyphosphates (column 10, lines 1-11).

80. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add ammonium polyphosphates to the PET film of Murschall in order to improve the flame resistance of the film.

81. Regarding the optical requirements of claim 1, 7, 9, and 11. The examiner takes the position that these limitations are met in view of the fact that the combination of Macdonald with Murschall, Schreck, Kishida and Ragan results in a film meeting all of the structural and compositional requirements of these claims.

#### ***Examiners Note***

82. The examiner respectfully submits that the applicant could overcome a number of the above rejections by providing data that clearly shows either: 1) That the optical properties of the instant invention are unexpected; or 2) That the optical properties of the instant invention are not necessarily met simply by biaxially orienting a film having the same concentration of components as that of the instantly claimed invention. I.e. if

Art Unit: 1773

the applicant could provide data that establishes that the optical properties are affected by the manner in which the film is made (i.e. a specific degree of orientation is required), this would likely overcome the cited prior art. The applicant should support these arguments with actual data. Simply arguing that the optical properties of the instant invention are unexpected or not routinely attainable is not likely to be persuasive without data supporting these contentions.

### ***Response to Arguments***

83. Applicant's arguments filed 03/03/2004 have been fully considered but they are not persuasive. Applicant's arguments are directed to the fact that the Murschall film is unoriented. The new grounds of rejection clearly address this deficiency. Thus this argument is unpersuasive. The examiner notes that the applicant is trying to establish the unexpected results of the invention. However, an argument of unexpected results is only persuasive when *evidence* is presented that clearly establishes that the results are truly unexpected. If applicant can establish on the record that a biaxially oriented crystallizable thermoplastic having the claimed optical properties is truly unexpected, the examiner will likely remove the rejection. However, the applicant should note that any argument of unexpected results must be commensurate in scope with the claims. Thus, if the unexpected results can only be shown for a biaxially oriented PET film, then the claims must be limited to PET, otherwise the unexpected results will not be persuasive.

84. The applicant's representative is respectfully invited to contact the examiner if further clarification is desired.

Art Unit: 1773


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 571-272-1517. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on 571-272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

704  
nju

  
Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700